

REMARKS

Claims 2 through 4, 19, and 20 have been previously canceled. Claims 1, 5, 16, 21, 28, and 29 have been amended. Claims 1, 5 through 18, and 21 through 29 remain in the application.

The drawings were objected to because of alleged informalities. Applicants respectfully traverse this objection.

As to the scallops 170, they are located on the correct side to prevent reverse travel of the cable 184 as illustrated in Figure 4. Counsel for Applicants has confirmed this with the inventors. As illustrated in the attached Figure 4, the distance between point A of the scallops 170 and the clamping surface 190 is at its greatest. During reverse travel of the cable 184, the cam 166 rotates clockwise. Point A moves clockwise to engage the cable 184. The distance between point A of the scallops 170 and the clamping surface 190 is at its smallest and would engage the cable 184 against the clamping surface 190 as illustrated in attached Figure 5. Since the cable 184 is made of a metal material and due to the thickness of the metal cable 184, there is no way that the scallops 170 can rotate past the cable 184 to disengage the cable 184 as the Examiner contends. Although the first two scallops 170 may pivot away from the cable 184, it is clear that the last two scallops 170 pivot toward the cable 184 and clamp the cable 184 against the clamping surface 190. As such, the scallops 170 are located on the correct side of the cam 166. If the scallops 170 were located on the other side of the cam 166 as the Examiner contends, the scallops 170 would pivot away from the cable 184 during reverse travel of the cable 184. Therefore, it is respectfully submitted that the drawings overcome the objections and are acceptable.

Claim 29 was rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant respectfully traverses this rejection.

An analysis of whether the claims are supported by an enabling disclosure requires a determination of whether that disclosure contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention. The test for enablement is whether one skilled in the art could make and use the claimed invention from the disclosure coupled with information known in the art without undue experimentation. See United States v. Teletronics, Inc., 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988), cert. denied, 109 S.Ct. 1954 (1989); In re Stephens, 529 F.2d 1343, 1345, 188 U.S.P.Q. 659, 661 (C.C.P.A. 1976).

In order to make a rejection, the Examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. See In re Wright, 999 F.2d 1557, 1561-62, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993)(Examiner must provide a reasonable explanation as to why the scope of protection provided by a claim is not adequately enabled by the disclosure).

Thus, the dispositive issue is whether Applicants' disclosure, considering the level of ordinary skill in the art as of the date of Applicants' application, would have enabled a person of such skill to make Applicants' invention without undue experimentation. The threshold step in resolving this issue as set forth supra is to determine whether the Examiner has met his burden of proof by advancing acceptable reasoning inconsistent with enablement. This the Examiner has not done.

The Specification clearly states, on page 19, lines 3 through 7, that the torque about the stud 168 rotates the cam 166 toward the buckle assembly 30 and into the cable 184 and compresses the cable 184 between the cam 166 and a clamping surface 190 of the frame 134 as illustrated in Figure 5. The Specification clearly states, on page 19, lines 7 through 9, that the cam 166 generates a clamping force on the cable 184 and prevents reverse travel of the cable 184 and therefore the buckle assembly 30. The Specification clearly states, on page 19, lines 12 through 13, that it should be appreciated that the scallops 170 engage the cable 184. FIGS. 4 and 5 clearly show that the scallops 170 are located on the correct side to prevent reverse travel of the cable 184. As illustrated in the attached Figure 4, the distance between point A of the scallops 170 and the clamping surface 190 is at its greatest. During reverse travel of the cable 184, the cam 166 rotates clockwise. Point A moves clockwise to engage the cable 184. The distance between point A of the scallops 170 and the clamping surface 190 is at its smallest and would engage the cable 184 against the clamping surface 190 as illustrated in attached Figure 5. Since the cable 184 is made of a metal material and due to the thickness of the metal cable 184, there is no way that the scallops 170 can rotate past the cable 184 to disengage the cable 184 as the Examiner contends. Although the first two scallops 170 may pivot away from the cable 184, it is clear that the last two scallops 170 pivot toward the cable 184 and clamp the cable 184 against the clamping surface 190. As such, the scallops 170 are located on the correct side of the cam 166. One skilled in the art would clearly have sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention. It is respectfully submitted that claim 29 is allowable over the rejection under 35 U.S.C. § 112, first paragraph.

Claim 29 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants respectfully traverse this rejection.

Contrary to the Examiner, the claim language of claim 29 is consistent with the embodiment illustrated in Figures 4 and 5 and clamping would occur. The claim language of claim 29 is clear and definite. It is respectfully submitted that claim 29 is allowable over the rejection under 35 U.S.C. § 112, second paragraph.

Claims 1, 5 through 7, 9, 16, 21, 23, and 25 through 29 were rejected under 35 U.S.C. § 103 as being unpatentable over Meyer et al. (U.S. Patent No. 6,068,664) in view of Wier (U.S. Patent No. 6,039,352). Applicants respectfully traverse this rejection.

U.S. Patent No. 6,068,664 to Meyer et al. discloses a tightening device for use with safety belts with eccentric locking. A cable 10 supports a belt buckle 11 and its other end is connected to a drive device 12, which is comprised of a cylinder 13, a piston 14 guided therein, and a propelling charge 15. The cable 10 is fastened to the piston 14. Between the belt buckle 11 and the drive device 12, the cable 10 is guided about a deflection device, which is comprised of an eccentric pawl 16 rotatable about a rotational axis 23. The eccentric pawl 16 for the purpose of deflection in the initial position comprises a deflection end 18 about which the cable 10 is guided, whereby adjacent to the deflection end 18, viewed in the tightening direction, i.e., in the direction of movement of the piston 14 in the cylinder 13, an eccentric arc 19 is provided which has an outer tothing 20. With such a geometric design of the eccentric pawl 16, it is ensured that upon return movement of the cable 10 counter to the tightening direction the force acting via the deflection end 18 has a sufficient leverage due to the embodiment of the eccentric pawl 16 as a two-arm elongate lever in order to pivot the eccentric pawl 16 in the clockwise direction so that

initially the first tooth 21 of the eccentric arc 19 engages the cable 10. Due to the increasing radius of the eccentric arc 19, with further pivoting of the eccentric pawl 16, the cable 10 is increasingly clamped between the counter plate 17 and the outer toothing 20 of the eccentric pawl 16. Meyer et al. does not disclose a rotatable cam having a radius portion on one end and an eccentric portion on an opposite end with the radius portion having a plurality of scallops on one side thereof and the frame including a base wall and opposed side walls extending from the base wall with the base wall including a clamping surface disposed above the scallops of the radius portion of the cam with the cam cooperating with the cable to generate a clamping force to clamp the cable between the cam and the clamping surface to prevent reverse travel of the cable after tightening the seat restraint.

U.S. Patent No. 6,039,352 to Wier discloses a buckle tensioner. The buckle tensioner has as its main parts a linear drive 10, a belt buckle 12, a traction member 14, whose one end is attached to the linear drive 10 and whose other end is connected with the belt buckle 12, and a deflection member 16. The deflection member 16 serves to deflect the traction member 14, which is preferably in the form of a steel cable, between its two ends through an angle of approximately 90 degree. The deflection member 16 is provided with a holding section 18 for the linear drive 10 and with an attachment section 20. This attachment section 20 is provided with a hole, in which a fastening screw 22 is received. By means of the screw bolt or, respectively, the fastening screw, the buckle tensioner is vehicle-fixed mounted. Wier does not disclose a rotatable cam having a radius portion on one end and an eccentric portion on an opposite end with the radius portion having a plurality of scallops on one side thereof and the frame including a base wall and opposed side walls extending from the base wall with the base wall including a clamping surface disposed above the scallops of the radius portion of the cam

with the cam cooperating with the cable to generate a clamping force to clamp the cable between the cam and the clamping surface to prevent reverse travel of the cable after tightening the seat restraint.

In contradistinction, claim 1 claims the present invention as a seat restraint tensioner for a seat restraint system in a vehicle including a frame for operative connection to vehicle structure and a cable having a first end and a second end. The first end is operatively connected to a seat restraint of the seat restraint system. The seat restraint tensioner also includes a movable mechanism connected to the second end of the cable to apply a force for tightening the seat restraint when activated. The seat restraint tensioner further includes a rotatable cam being pivotally connected to the frame and having a radius portion on one end and an eccentric portion on an opposite end. The radius portion has a plurality of scallops on one side thereof. The frame includes a base wall and opposed side walls extending from the base wall. The base wall includes a clamping surface disposed above the scallops of the radius portion of the cam and the cam is disposed between the side walls. The cam cooperates with the cable to generate a clamping force to clamp the cable between the cam and the clamping surface to prevent reverse travel of the cable after tightening the seat restraint. Claims 16 and 28 are similar to claim 1 and include other features of the present invention.

The United States Court of Appeals for the Federal Circuit (CAFC) has stated in determining the propriety of a rejection under 35 U.S.C. § 103, it is well settled that the obviousness of an invention cannot be established by combining the teachings of the prior art absent some teaching, suggestion or incentive supporting the combination. See In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 U.S.P.Q. 657 (Fed. Cir. 1985); ACS Hospital Systems, Inc. v. Montefiore

Hospital, 732 F.2d 1572, 221 U.S.P.Q. 929 (Fed. Cir. 1984). The law followed by our court of review and the Board of Patent Appeals and Interferences is that “[a] prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.” In re Rinehart, 531 F.2d 1048, 1051, 189 U.S.P.Q. 143, 147 (C.C.P.A. 1976). See also In re Lalu, 747 F.2d 703, 705, 223 U.S.P.Q. 1257, 1258 (Fed. Cir. 1984) (“In determining whether a case of prima facie obviousness exists, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification.”)

None of the references cited, either alone or in combination, teaches or suggests the claimed invention of claims 1, 16, and 28. Specifically, Meyer et al. ‘664 merely discloses a tightening device for use with safety belts with eccentric locking in which a cable is guided about a deflection device which is comprised of an eccentric pawl rotatable about a rotational axis and upon return movement of the cable counter to the tightening direction, the force acting via the deflection end has a sufficient leverage to pivot the eccentric pawl in the clockwise direction and clamp the cable between the counter plate and the outer toothing. Meyer et al. ‘664 lacks a rotatable cam having a radius portion on one end and an eccentric portion on an opposite end with the radius portion having a plurality of scallops on one side thereof and the frame including a base wall and opposed side walls extending from the base wall with the base wall including a clamping surface disposed above the scallops of the radius portion of the cam with the cam cooperating with the cable to generate a clamping force to clamp the cable between the cam and the clamping surface to prevent reverse travel of the cable after tightening the seat restraint. In Meyer et al. ‘664, the counter plate 17 is disposed below the outer toothing portion 20 and upon

return movement of the cable 10 counter to the tightening direction, the outer toothing 20 of the eccentric arc 19 engages the cable 10 such that the cable 10 is clamped between the counter plate 17 and the outer toothing 20 of the eccentric pawl 16.

Wier '352 merely discloses a buckle tensioner having a linear drive, a belt buckle, a traction member, whose one end is attached to the linear drive and whose other end is connected with the belt buckle, and a deflection member to deflect the traction member, which is in the form of a steel cable. Wier '352 lacks a rotatable cam having a radius portion on one end and an eccentric portion on an opposite end with the radius portion having a plurality of scallops on one side thereof and the frame including a base wall and opposed side walls extending from the base wall with the base wall including a clamping surface disposed above the scallops of the radius portion of the cam with the cam cooperating with the cable to generate a clamping force to clamp the cable between the cam and the clamping surface to prevent reverse travel of the cable after tightening the seat restraint. In Wier '352, there is no cam or clamping surface. There is no suggestion or motivation for combining Meyer et al. '664 and Wier '352 together.

The references, if combinable, fail to teach or suggest the combination of a seat restraint tensioner including a rotatable cam having a radius portion on one end and an eccentric portion on an opposite end with the radius portion having a plurality of scallops on one side thereof and the frame including a base wall and opposed side walls extending from the base wall with the base wall including a clamping surface disposed above the scallops of the radius portion of the cam with the cam cooperating with the cable to generate a clamping force to clamp the cable between the cam and the clamping surface to prevent reverse travel of the cable after tightening the seat restraint as claimed by Applicants. The claimed combination is novel and unobvious because the seat restraint tensioner has a relatively low cost, simpler assembly and

smaller packaging than current pretensioners. The Examiner has failed to establish a case of prima facie obviousness. Therefore, it is respectfully submitted that claims 1, 16, and 28 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 103.

As to claim 29, claim 29 claims the present invention as a seat restraint tensioner for a seat restraint system in a vehicle including a frame for operative connection to vehicle structure, a housing connected to the frame, and a movable piston disposed in the housing. The seat restraint tensioner also includes a cable fitting for connection to a buckle assembly of the seat restraint system above the frame and a cable having one end operatively connected to the cable fitting and another end operatively connected to the piston. The seat restraint tensioner further includes a gas generator operatively connected to the housing for expelling a gas to move the piston to apply a force for pulling-down the buckle assembly and a rotatable cam pivotally connected to the frame and having a radius portion on one end and an eccentric portion on an opposite end. The radius portion has a plurality of scallops on one side thereof. The frame includes a base wall and opposed side walls extending from the base wall. The base wall includes a clamping surface at an angle greater than zero relative to a longitudinal axis of the housing and disposed above the scallops of the radius portion of the cam and the cam is disposed between the side walls. The cam cooperates with the cable to generate a clamping force to clamp the cable between the cam and the clamping surface.

None of the references cited, either alone or in combination with each other, teach or suggest the claimed invention of claim 29. Specifically, Meyer et al. '664 merely discloses a tightening device for use with safety belts with eccentric locking in which a cable is guided about a deflection device which is comprised of an eccentric pawl rotatable about a rotational axis and upon return movement of the cable counter to the tightening direction, the force acting via the

deflection end has a sufficient leverage to pivot the eccentric pawl in the clockwise direction and clamp the cable between the counter plate and the outer toothing. Meyer et al. '664 lacks a rotatable cam having a radius portion on one end and an eccentric portion on an opposite end with the radius portion having a plurality of scallops on one side thereof and the frame including a base wall and opposed side walls extending from the base wall with the base wall including a clamping surface at an angle greater than zero relative to a longitudinal axis of the housing and disposed above the scallops of the radius portion of the cam with the cam cooperating with the cable to generate a clamping force to clamp the cable between the cam and the clamping surface. In Meyer et al. '664, the counter plate 17 is disposed below the outer toothing portion 20 and upon return movement of the cable 10 counter to the tightening direction, the outer toothing 20 of the eccentric arc 19 engages the cable 10 such that the cable 10 is clamped between the counter plate 17 and the outer toothing 20 of the eccentric pawl 16.

Wier '352 merely discloses a buckle tensioner having a linear drive, a belt buckle, a traction member, whose one end is attached to the linear drive and whose other end is connected with the belt buckle, and a deflection member to deflect the traction member, which is in the form of a steel cable. Wier '352 lacks a rotatable cam having a radius portion on one end and an eccentric portion on an opposite end with the radius portion having a plurality of scallops on one side thereof and the frame including a base wall and opposed side walls extending from the base wall with the base wall including a clamping surface at an angle greater than zero relative to a longitudinal axis of the housing and disposed above the scallops of the radius portion of the cam with the cam cooperating with the cable to generate a clamping force to clamp the cable between the cam and the clamping surface. In Wier '352, there is no cam or clamping

surface. There is no suggestion or motivation in the art for combining Meyer et al. '664 and Wier '352 together.

Even if these references could be combined, neither teaches a rotatable cam having a plurality of scallops on one side thereof and the frame including a clamping surface at an angle greater than zero relative to a longitudinal axis and disposed above the scallops of the cam with the cam cooperating with the cable. Applicants are not attacking the references individually, but are clearly pointing out that each reference is deficient and, if combined (although Applicants maintain that they are not combinable), the combination is deficient. The present invention sets forth a unique and non-obvious combination of a seat restraint tensioner having a relatively low cost, simpler assembly and smaller packaging than current pretensioners. The references, if combinable, fail to teach or suggest the combination of a seat restraint tensioner including a rotatable cam having a radius portion on one end and an eccentric portion on an opposite end with the radius portion having a plurality of scallops on one side thereof and the frame including a base wall and opposed side walls extending from the base wall with the base wall including a clamping surface at an angle greater than zero relative to a longitudinal axis of the housing and disposed above the scallops of the radius portion of the cam with the cam cooperating with the cable to generate a clamping force to clamp the cable between the cam and the clamping surface as claimed by Applicants.

Further, the CAFC has held that "[t]he mere fact that prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification". In re Gordon, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). The Examiner has failed to show how the prior art suggested the desirability of modification to achieve Applicants' invention. Thus, the Examiner has failed to establish a case

of prima facie obviousness. Therefore, it is respectfully submitted that claim 29 is allowable over the rejection under 35 U.S.C. § 103.

Claims 8 and 22 were rejected under 35 U.S.C. § 103 as being unpatentable over Meyer et al. '664 in view of Wier '352 and further in view of Isaji et al. (U.S. Patent No. 5,707,080). Applicants respectfully traverse this rejection for the same reasons given above to claims 1 and 16.

Claims 10 through 12, 15, and 24 were rejected under 35 U.S.C. § 103 as being unpatentable over Meyer et al. '664 in view of Wier '352 and further in view of Greiner (U.S. Patent No. 5,495,790). Applicants respectfully traverse this rejection for the same reasons given above to claims 1 and 16.

Claims 13, 14, and 17 were rejected under 35 U.S.C. § 103 as being unpatentable over Meyer et al. '664 in view of Wier '352 and further in view of Downie et al. (U.S. Patent No. 6,213,511). Applicants respectfully traverse this rejection for the same reasons given above to claims 1 and 16.

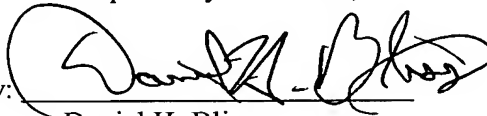
Claim 18 was rejected under 35 U.S.C. § 103 as being unpatentable over Meyer et al. '664 in view of Wier '352 and Downie et al. '511 and further in view of Greiner '790. Applicants respectfully traverse this rejection for the same reasons given above to claim 16.

Obviousness under § 103 is a legal conclusion based on factual evidence (In re Fine, 837 F.2d 1071, 1073, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988), and the subjective opinion of the Examiner as to what is or is not obvious, without evidence in support thereof, does not suffice. Since the Examiner has not provided a sufficient factual basis, which is supportive of his/her position (see In re Warner, 379 F.2d 1011, 1017, 154 U.S.P.Q. 173, 178 (C.C.P.A. 1967), cert. denied, 389 U.S. 1057 (1968)), the rejections of claims 1, 5 through 18, and 21 through 29

are improper. Therefore, it is respectfully submitted that claims 1, 5 through 18, and 21 through 29 are allowable over the rejections under 35 U.S.C. § 103.

Based on the above, it is respectfully submitted that the claims are in a condition for allowance, which allowance is solicited.

Respectfully submitted,

By: 
Daniel H. Bliss
Reg. No. 32,398

Delphi Technologies, Inc.
Legal Staff – Intellectual Property
P.O. Box 5052
Troy, Michigan 48007
(248) 813-1230

Date: February 13, 2004

Attorney Docket No.: DP-305654